

The following is a complete listing of all claims in the application, with an indication of the status of each:

Listing of claims:

1 1 (Currently amended). A computer-implemented auction method for holding an
2 auction for ~~a product~~ each product type of multiple product types comprising the steps
3 of:

4 receiving bids from at least one computer or from multiple computers within a
5 network of computers, for each product type of multiple product types in a
6 transaction, that include minimum desired volumes and maximum desired volumes
7 and evaluation prices for said each product type, wherein said each product type is a
8 known configuration combining more than one product;

9 generating, using computing resources, a finite set of bids that include as an
10 element said bids that were received from said at least one computer or from multiple
11 computers within said network of computers;

12 employing dynamic programming using said computing resources to generate,
13 using said bids that were received in said receiving bids step, a subset of bids wherein
14 a maximum gain is obtained within a range represented by a count of said each
15 product type available for sale; and

16 identifying or accepting a bid from said subset of bids.

1 2 (Currently amended). The auction method according to claim 1, wherein said
2 evaluation prices for said each product type are represented as a non-linear function
3 relative to the desired volume of said each product type in said transaction.

1 3 (Currently amended). The auction method according to claim 1, further comprising
2 the steps of:

3 allocating a two-dimensional array V to a memory area by using said dynamic
4 programming using said computing resources;
5 initializing said two-dimensional array V; and
6 recursively solving the recursive equation for said two-dimensional array V,
7 wherein

$$8 \quad V(k, j) = \max \{ V(k+1, j), V(k, j+1), \max_{l_k \leq n \leq h_k} \{ V(k+1, j+x) + e_k(x) \} \}$$

9 is used as the recursive equation, where V(k, j) denotes said two-dimensional array V
10 populated with said evaluation prices; where k denotes an integer equal to or greater
11 than 1 and equal to or smaller than n; j denotes an integer equal to or greater than 0
12 and equal to or smaller than s; n denotes the number of bids; s denotes the number of
13 products said each product types available for the transaction; e_k denotes the
14 evaluation price when x units of said each product type products are purchased
15 according to the bid b_k ; l_k denotes the minimum volume of the bid b_k ; and h_k denotes
16 the maximum volume of the bid b_k .

1 4 (Currently amended). The auction method according to claim 3, wherein a bid
2 according to which said each product type is optimally distributed is selected by back
3 tracking of said two-dimensional array V from the element on the smallest row and in
4 the smallest column.

1 5 (Currently amended). The auction method according to claim 1, further comprising:
2 allocating two-dimensional arrays V and Q to a memory area by using said
3 dynamic programming;
4 initializing said two-dimensional arrays V and Q; and

5 recursively solving recursive equations for said two-dimensional arrays V and
6 Q using said computing resources,
7 wherein said evaluation prices for said each product type represent a linear
8 function relative to the volumes for said each product type desired for said
9 transaction, and
10 wherein

$$V(k, j) := \begin{cases} V(k+1, j) \\ V(k, j+1) \\ V(k, j+1) + e_k & \text{if } 1_k \leq Q(k, j+1) < h_k \\ V(k+1, j+1_k) + e_k 1_k \end{cases}$$

$$11 \quad Q(k, j) := \begin{cases} Q(k, j+1) + 1 & \text{(if } V(k, j) = V(k, j+1) + e_k \\ 1_k & \text{(if } V(k, j) = V(k+1, j+1_k) + e_k 1_k \\ Q(k, j+1) & \text{(if } V(k, j) = V(k, j+1) \\ 0 & \text{(otherwise)} \end{cases}$$

12 is employed as said recursive equation, where V(k, j) denotes said two-dimensional
13 array V populated with said evaluation prices; where Q(k, j) denotes said two-
14 dimensional array Q populated with said count of said each product types available
15 for sale; where k denotes an integer equal to or greater than 1 and equal to or smaller
16 than n; j denotes an integer equal to or greater than 0 and equal to or smaller than s; n
17 denotes the number of bids; s denotes the number of products said each product types
18 available for the transaction; e_k denotes the evaluation price when x units of products

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19 said each product types are purchased according to the bid b_k ; l_k denotes the minimum
20 volume of the bid b_k ; and h_k denotes the maximum volume of the bid b_k .

1 6 (Currently amended). The auction method according to claim 5, wherein a bid
2 according to which said each product type is optimally distributed is selected by back
3 tracking of said two-dimensional array V from the element on the smallest row and in
4 the smallest-column.

1 7-12. Canceled

1 13 (Currently amended). An auction system of computing resources for holding an
2 auction for ~~a product~~ each product type of multiple product types comprising:

3 means for receiving bids from at least one computer or from multiple
4 computers within a network of computers, for each product type of multiple product
5 types in a transaction, that include minimum desired volumes and maximum desired
6 volumes and evaluation prices for said each product type, wherein said each product
7 type is a known configuration combining more than one product;

8 means for generating, using computing resources, a finite set of bids that
9 include as an element said bids that were received from said at least one computer or
10 from multiple computers within said network of computers;

11 means for employing dynamic programming using said computing resources
12 to generate, using said bids that were received from said at least one computer or from
13 multiple computers within said network of computers, a subset of bids wherein a
14 maximum gain is obtained within a range represented by a count of said each product
15 types available for sale;

16 means for identifying or accepting a bid from said subset of bids.

1 14 (Currently amended). The auction system according to claim 13, wherein said
2 evaluation prices for said each product type are represented as a non-linear function
3 relative to the desired volume of said each product type in said transaction.

1 15 (Currently amended). The auction system according to claim 13, further
2 comprising:

3 means for allocating a two-dimensional array V to a memory area by using
4 said dynamic programming using said computing resources;

5 means for initializing said two-dimensional array V;

6 and recursively solving the recursive equation for said two-dimensional array
7 V, wherein

8 $V(k, j) := \max \{V(k+1, j), V(k, j+1), \max_{l_k \leq n \leq h_k} \{V(k+1, j+x) + e_k(x)\}\}$

9 is used as the recursive equation, where V(k, j) denotes said two-dimensional array V
10 populated with said evaluation prices; where Q (k, j) denotes said two-dimensional
11 array Q populated with said count of said each product type available for sale; where
12 k denotes an integer equal to or greater than 1 and equal to or smaller than n; j denotes
13 an integer equal to or greater than 0 and equal to or smaller than s; n denotes the
14 number of bids; s denotes the number of products each product types available for the
15 transaction; e_k denotes the evaluation price when x units of products said each
16 products types are purchased according to the bid b_k ; l_k denotes the minimum volume
17 of the bid b_k ; and h_k denotes the maximum volume of the bid b_k .

1 16 (Currently amended). The auction system according to claim 15, further
2 comprising:

3 means for selecting a bid according to which said each product type is
4 optimally distributed by back tracking of said two-dimensional array V from the
5 element on the smallest row and in the smallest column.

1 17 (Currently amended). The auction system according to claim 13, further
2 comprising:

3 means for allocating two-dimensional arrays V and Q to a memory area by
4 using said dynamic programming using said computing resources;

5 means for initializing said two-dimensional arrays V and Q; and
6 means for recursively solving recursive equations for said two-dimensional arrays V
7 and Q, wherein said evaluation prices for said each product types represent a linear
8 function relative to the volumes for said each product type desired for said
9 transaction, and

10 wherein

$$V(k, j) := \begin{cases} V(k+1, j) \\ V(k, j+1) \\ V(k, j+1) + e_k & \text{if } 1k \leq Q(k, j+1) < h_k \\ V(k+1, j+1k) + e_k 1k \end{cases}$$

$$Q(k, j) := \begin{cases} Q(k, j+1) + 1 & \text{(if } V(k, j) = V(k, j+1) + e_k \\ 1k & \text{(if } (k, j) = V(k+1, j+1k) + e_k 1k \\ Q(k, j+1) & \text{(if } V(k, j) = V(k, j+1) \\ 0 & \text{(otherwise)} \end{cases}$$

11 is employed as said recursive equation, where V(k, j) denotes said two-dimensional
12 array V populated with said evaluation prices; where Q(k, j) denotes said two-
13 dimensional array Q populated with said count of said each product type available for
14 sale; where k denotes an integer equal to or greater than 1 and equal to or smaller than
15 n; j denotes an integer equal to or greater than 0 and equal to or smaller than s; n

denotes the number of bids; s denotes the number of ~~products~~ each product type available for the transaction; e_k denotes the evaluation price when x units of said each product type ~~products~~ are purchased according to the bid b_k ; l_k denotes the minimum volume of the bid b_k ; and h_k denotes the maximum volume of the bid b_k .

18 (Currently amended). The auction system according to claim 17, wherein a bid according to which said each product type is optimally distributed is selected by back tracking of said two-dimensional array V from the element on the smallest row and in the smallest column.

19-24. Canceled

25 (Currently amended). A computer-readable storage medium on which a program for holding an auction for ~~a product~~ each product type of multiple product types is stored, said program enabling computing resources to perform:

a process for receiving bids from at least one computer or from multiple computers within a network of computers, for each product type of multiple product types in a transaction, that include minimum desired volumes and maximum desired volumes and evaluation prices for said each product type, wherein said each product type is a known configuration combining more than one product;

a process for generating, using computing resources, a finite set of bids that include as an element said bids that were received from said at least one computer or from multiple computers within said network of computers;

a process for employing dynamic programming using said computing resources to generate, using said bid set that were received while using said process for receiving bids, a subset of bids wherein a maximum gain is obtained within a range represented by a count of said each product type available for sale; and

a process for identifying or accepting a bid from said subset of bids.

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1 26. Canceled

1 27 (Currently amended). A computer-implemented auction method for holding an
2 auction for ~~a product~~ each product type of multiple product types comprising the steps
3 of:

4 receiving bids from at least one computer or from multiple computers within a
5 network of computers, for each product type of multiple product types in a transaction,
6 that include a condition concerning said each product type, wherein said each product
7 type is a known configuration combining more than one product;

8 generating, using computing resources, a finite set of bids that include as an
9 element said bids that were received from said at least one computer or from multiple
10 computers within said network of computers;

11 employing dynamic programming using said computing resources to generate,
12 using said bids that were received in said receiving bids step, a subset of bids wherein
13 a maximum gain is obtained within a range represented by a count of said each product
14 type available for sale; and

15 identifying or accepting a bid from said subset of bids.